

SUPPORT FOR THE AMENDMENTS

Claims 3, 5 and 9-11 are amended to use wording and structure consistent with U.S. patent law practice.

Claim 8 is amended to correct an obvious spelling error.

No new matter will be added to this application by entry of this amendment.

Claims 1-11 and 14-21 are active.

REMARKS/ARGUMENTS

The claimed invention provides cyan, yellow and magenta recording inks comprising: water, a wetting agent, a surfactant, and a colorant wherein the wetting agent comprises 3-methyl-1,3-butanediol and the colorant is a pigment or an aqueous dispersion of polymer fine particles containing a colorant. No such cyan, yellow or magenta inks are disclosed or suggested in the cited reference.

The rejection of Claims 1, 4-10, 14-15, 18-19 and 21 under 35 U.S.C. 103(a) over Namba et al. (U.S. 2005/0054751) in view of Ishibashi et al. (U.S. 2004/0003754) and Nagashima et al. (U.S. 2005/0170989) is respectfully traversed.

Namba describes an ink composition comprising a polymer emulsion of polymer fine particles containing coloring material, a first hydroxy compound, a second hydroxyl compound having 8 to 11 carbon atoms, a glycol ether having 8 to 11 carbon atoms, a water soluble organic solvent, at least one surfactant and at least one fluorine surfactant. Nowhere does this reference disclose 3-methyl-1,3-butanediol and nowhere is there a disclosure or suggestion that color saturation would be improved in an ink composition as according to the claimed invention.

Regarding the ink composition described, Namba states [0103]:

Furthermore, the present inventors have found out the following. Using in combination a **specific hydroxyl compound having a specific structure** can obtain a print image that is excellent in ejection reliability, has proper penetration, is especially excellent in dryness, and excellent in character feathering and color bleeding, and a print image that is capable of making a more remarkable chroma improvement when the fluorine surfactant is combined with the remaining **specific-structure surfactant** . . . (Bold added)

Applicants respectfully submit that as described above, Namba clearly requires a specific structural formula character for the wetting agent. This requirement is further described in [0107] as:

A fourth feature of the present invention is that a high-viscosity wetting agent is used which is a mixture of glycerin with at least one high-viscosity wetting agent selected from the group consisting of glycerin, 3-butanediol, triethylene glycol, 1,6-hexanediol, propylene glycol, 1,5-pentanediol, diethylene glycol, dipropylene glycol, trimethylol propane, and trimethylol ethane, instead of a low-viscosity wetting agent . . .

Applicants respectfully submit and the Office acknowledges (Official Action dated January 15, 2009, page 6, lines 12-13) that Namba does not disclose or suggest 3-methyl-1,3-butanediol as a component of the wetting agent. Ishibashi is cited to show a wetting agent containing 3-methyl-1,3-butanediol.

Ishibashi describes an ink jet ink containing water, a water-soluble organic solvent and a **water soluble anthrapyridone dye**. Paragraph [0035] states:

“As a result of diligent investigation, the inventors of the present invention found that in an ink-jet ink comprising a water-soluble dye, using water and water-soluble solvents, the water soluble dye containing a compound represented by Formula (1) exhibited superiority in color image stability in ambient light.”

The Office alleges that (Official Action dated January 15, 2009, page 7, lines 1-3):

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink composition of Namba et al. by the aforementioned teaching of Ishibashi et al. in order to have the bleed free high quality printed image.

In a Precedential Opinion rendered by the Board of Patent Appeals and Interferences in *Ex parte Whalen II* (Appeal 2007-4423, Application 10/281,142) on July 23, 2008, the Board stated:

“The KSR Court noted that obviousness cannot be proven merely by showing that the elements of a claimed device were known in the prior art; it must be shown that those of ordinary skill in the art would have had some “apparent reason to combine the known elements in the fashion claimed.””

“The Examiner has not persuasively explained why a person of ordinary skill in the art would have had a reason to modify the compositions taught by Evans, Greff’767, or Taki in a way that would result in the compositions defined by the claims on appeal. Therefore, The Examiner has not made out a *prima facie* case of obviousness under 35 U.S.C. § 103.”

Namba is directed to inks containing pigments or polymer fine particles containing a water-insoluble colorant (Claim 1) while Ishibashi is directed to inks containing water soluble anthrapyridone dyes (Abstract). Namba describes the differences in performance and problems associated with ink compositions based on water-soluble dyes and those based on pigments and polymer particles [0003-0012].

Applicants respectfully submit that the Office has not explained why or how one of ordinary skill in the art, at the time of the claimed invention, would have selected 3-methyl-1,3-butanediol from the list of Ishibashi, which is directed to water soluble dyes, to replace one of the defined compounds of Namba, which is directed to pigments or polymer fine particles.

In addition, Applicants respectfully submit that the two references are directed to different colorants having different problems and therefore, one of ordinary skill in the art would not have looked to the water-soluble dye ink formulation of Ishibashi to deal with a

problem associated with inks based on water-insoluble pigments and polymer particle colorants.

Applicants respectfully submit that the stated advantages cited by the Office for Ishibashi refer to properties provided by the dye structure and not the specific ink formulation. Moreover, Ishibashi does not disclose or suggest that specifically 3-methyl-1,3-butanediol, from the group listed in [0047] would provide the performance improvement in color saturation shown by Applicants in Table 3 of the specification. Table 3 is again shown below for the Examiner's convenience.

Table 3

	Yellow	Magenta	Cyan	Red	Green	Blue
Example 19	82.09	61.88	51.67	55.92	44.98	38.96
Example 20	81.24	61.68	51.04	55.74	44.75	38.75
Example 21	81.35	60.55	51.44	55.51	44.86	38.75
Example 22	81.37	60.68	51.62	55.49	44.91	38.83
Example 23	82.01	61.72	51.11	55.87	44.88	38.81
Example 24	82.06	61.69	51.58	55.91	44.87	38.89
Example 25	81.19	60.71	51.16	55.72	44.73	38.71
Example 26	81.99	61.73	51.59	55.91	44.92	38.86
Example 27	82.07	60.63	51.37	55.48	44.81	38.75
Example 28	82.06	61.89	51.18	55.87	44.79	38.8
Example 29	82.05	61.82	51.42	55.87	44.77	38.92
Comp. Ex. 10	78.73	60.01	49.75	54.11	42.22	35.87
Comp. Ex. 11	78.98	59.42	49.44	54.21	42.19	35.44
Comp. Ex. 12	78.61	59.67	49.69	54.19	42.23	35.59
Comp. Ex. 13	78.60	60.07	49.51	54.14	42.14	35.91

Nowhere does either reference disclose or suggest such significant improvement in color saturation for inks containing 3-methyl-1,3-butanediol as obtained according to the claimed invention.

Nagashima is cited to show the perfluoro surfactant according to Formula (I).

However, this reference does not cure the deficiency of the combination of Namba and Ishibashi described above.

In view of the above, Applicants respectfully submit that the cited combination of references can neither anticipate nor render obvious the claimed invention. Accordingly, withdrawal of the rejection of Claims 1, 4-10, 14-15, 18-19 and 21 under 35 U.S.C. 103(a) over Namba in view of Ishibashi and Nagashima is respectfully requested.

The rejection of Claims 2-3, 11, 16-17 and 20 under 35 U.S.C. 103(a) over Namba in view of Takashi (JP 11-323221) is respectfully traversed.

Takashi describes an aqueous ink containing a black pigment which is a **self-dispersion type carbon black**. To prepare such a self-dispersion carbon black, pigment carbon black is surface treated with various agents which react with the pigment to chemically attach a hydrophilic group to the pigment surface.

In contrast, the claimed invention describes cyan, yellow or magenta inks containing colorant that is at least one of a pigment and an aqueous dispersion of polymer fine particles comprising a water-insoluble colorant.

Applicants note that Namba does describe a black ink comprising a self dispersion type pigment [0184] and that the wetting agent specified by the reference is one selected from the group consisting of glycerin, 3-butanediol, triethylene glycol, 1,6-hexanediol, propylene glycol, 1,5-pentanediol, diethylene glycol, dipropylene glycol, trimethylol propane, and trimethylol ethane. As previously shown Namba requires the wetting agent to be one of these specific structures.

The Office has alleged (Official Action dated January 15, 2009, page 8, lines 17-19) that:

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink composition of [Ishibashi] Namba

by the aforementioned teaching of Takashi in order to have the high quality printed image.

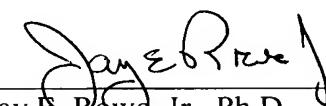
However, Applicants again refer to the above quoted Precedential Opinion and respectfully submit that the Office has not explained why one of ordinary skill in the art, at the time of the invention, would have replaced one of the specifically identified wetting agents of Namba with one different one from Takashi. Moreover, Takashi is directed to a black ink based on a self-dispersing type carbon black. Therefore, even if one were to substitute a component from Takashi into the Namba black ink, the claimed invention would not be obtained.

Accordingly, Applicants respectfully submit that the described deficiency of the primary reference cannot be cured by Takashi and therefore, the cited combination of references can neither anticipate nor render obvious the claimed invention. Withdrawal of the rejection of Claims 2-3, 11, 16-17 and 20 under 35 U.S.C. 103(a) over Namba in view of Takashi is respectfully requested.

Applicants respectfully submit that the above-identified application is now in condition for allowance and early notice of such action is earnestly solicited.

Respectfully submitted,

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